DOCUMENT RESUME

ED 322 192 TM 015 375

AUTHOR Brown, William L.; Stemmer, Paul M., Jr.
TITLE Michigan's Strategy for Assessing Employability Skills.
INSTITUTION Michigan State Dept. of Education, Lansing.
PUB DATE 11 Jun 90
NOTE 43p.; Paper presented at the Annual Meeting of the Education Commission of the States and Colorado Department of Education (Boulder, CO, October 10-13, 1990).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Employer Attitudes; Employers; *Employment Qualifications; *Mail Surveys; *Personnel Evaluation; *Questionnaires; Rating Scales; *State Programs; State Standards; Teamwork; *Test Construction; Testing Programs
IDENTIFIERS Academic Skills; Management Skills; *Michigan Employability Skills Survey

ABSTRACT

This paper describes Michigan's strategy for defining and assessing employability skills. A statewide task force, appointed by the Governor, defined an initial list of academic, personal management, and teamwork skills. The skills from this list were more specifically defined for a questionnaire that was mailed to a random sample of over 7,500 Michigan employers. The Michigan Employability Skills Survey (1989) lists 86 specific skills and behaviors. Respondents were asked to rate each skill on a Likert Scale with four options (critical, highly needed, somewhat needed, and not needed) when answering the following statement: "In my business, I need employees who can...". About 37% (2,752) of the sample returned the surveys. Results show that the skills contained in the task force profile were widely viewed as essential for all persons entering the work force. Personal management and teamwork skills were rated more important than were academic skills. However, when asked to consider skills needed to adapt to changes in the future, respondents rated academic skills as more critical than the other skills. Implications of the study for assessment are considered, and the Michigan Opportunity Card is proposed. Seven data tables, 12 figures, and the Michigan Employability Skills Survey (1989) are included. (RLC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
William L. Brown
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ED322192

MICHIGAN'S STRATEGY FOR ASSESSING EMPLOYABILITY SKILLS

William L. Brown
Paul M. Stemmer, Jr.

Michigan Department of Education
Office of Technical Assistance and Evaluation
PO Box 30008
Lansing, Michigan 48909

June 11, 1990

ABSTRACT

This presentation describes the State of Michigan's strategy for defining and assessing Employability Skills. A statewide Task Force, appointed by the Governor, defined an initial list of skills in the areas of Academic, Personal Management and Teamwork. The skills from this list were more specifically defined for a questionnaire which was mailed to a random sample of Michigan employers. Results showed that the skills contained in the Task Force profile were widely viewed as essential for all entering the work force. Personal Management and Teamwork skills were rated more important than Academic skills. However, when asked to consider skills needed to adapt to changes in the future, Academic skills were rated more critical than the others.

Presented at the 1990 ECS/CDE Assessment Conference: Boulder, Colorado.

TM015375

BEST COPY AVAILABLE

There has been an increasing awareness among employers and educators that the skill levels of the work force are not keeping up with the demands imposed by the emergence of new technologies and international competition. In order to be competitive in a world economy, our workforce must have enhanced skills: Our institutions must better prepare students for the rapidly changing demands of the new economy.

Employers have taken a keen interest in our educational system for preparing future employees. Educators recognize, however, that the purpose of schooling is more than just preparing workers for the job market. Self-development, awareness of cultural diversity, and the passing on of knowledge are all part of the mission of the school. Employability Skills takes the essential learnings of school and applies them in a context of real-world application. The employable citizen, then, is one who can apply these skills, behaviors, and attitudes in job-related situations.

A Brief History of the Michigan Employability Skills Program

The Michigan Legislature enacted a requirement in 1987 for development of a test to be used for endorsing each student's high school diploma. The concept has since been broadened to include using a variety of methods to assess employability skills, while eliminating the requirement for a diploma endorsement. Some of these use existing data, while others require new methods of gathering information. Others are presently emphasized on-the-job but not in school, which may require new ways for integrating assessment in school settings.

The Michigan Employability Skills Task Force was appointed by the Governor in November, 1987. The Task Force defined employability skills in three areas: Academic, Personal Management, and Teamwork. In October 1989, the Task Force was named by the Michigan State Board of Education as its advisory committee for Employability Skills. The Task Force now advises both the Governor's Cabinet Council on Human Investment and the State Board of Education.

Among the first activities of the Task Force was to survey Michigan employers to gain insight on the skills they perceive as needed. A representative survey of 7,500 Michigan employers confirmed that workers will need higher levels of literacy to understand and solve more complex work-related problems which cut across multiple areas; to understand and value life-long learning; and to work effectively in multiple roles within groups.

The Governor's Cabinet Council on Human Investment devised a strategy for creating one integrated Human Investment System out of the state's departments, agencies and programs with the common purpose of better accountability and management of Michigan's wide array of human investment resources (see **Creating a Human Investment System: Report to the Governor**)[1]. The Human Investment Fund Board was created to:

- Develop and oversee an integrated policy strategy for managing and expending Michigan's human investment resources across all relevant departments, agencies, and programs at state, regional and local levels;

---

[1] **Creating a Human Investment System: Report to the Governor.** (1989). The Michigan Job Training Coordinating Council, Box 300039, Lansing, MI 48909

- Establish all necessary standards required to effectively provide comprehensive human investment services to Michigan citizens;

- Establish clearly defined outcome measures applicable across all state and federally funded human investment programs, providing consistent cross-program evaluations of results and costs;

- Advise the Governor on the implementation of the Michigan Opportunity Card (an electronic smart card for storing personal data for Michigan Citizens); and

- Work closely with the private sector to ensure that state human investment strategies developed by the Board are responsive to the needs of Michigan employers and workers.

The "Employability Skills" Employer Survey [2]

Background

The first "product" of the Employability Skills Task Force was the Employability Skills Profile, which lists 53 skills needed by employees "to get, keep, and progress on a job." During the following year, the Task Force and Michigan Department of Education worked together to validate the Profile. Part of the validation process included performing a survey of a stratified random sample of over 7,500 Michigan employers. A description of this survey, and its results, follows.

Description of the Sample

The survey consisted of a list of 86 specific skills and behaviors that were arranged according to the Task Force Profile (see Appendices A and B). Respondents were asked to rate each skill using the following statement: "In my business, I need employees who can:...". The responses used the following Likert Scale (with corresponding codes):

	CRITICAL	HIGHLY NEEDED	SOMEWHAT NEEDED	NOT NEEDED
Code:	1	2	3	4

Approximately 7,500 surveys (see Appendix C for a copy of the survey) were mailed to employers across the State of Michigan using a mailing list provided by the Michigan Employment Security Commission (MESC). This sample was obtained from the entire universe of employers, since all employers are required to file with the MESC. The sample, which was stratified according to the type of industry using the U.S. Dept. of Labor's Standard Industry Codes (SIC) and the size of business, is described in Table 1.

The eventual return rate was 2,752 or approximately 37% of the sample. The breakdown of returns is also listed in Table 1.

---

[2] A comprehensive interpretation of the survey results can be found in Mehrens, William, (1989) **Michigan Employability Skills Technical Report.** Available by writing to Dr. Mehrens at Michigan State University, 462 Erickson Hall, East Lansing, MI 48824-1034.

TABLE 1
Employer and Sample Proportions

CATEGORY	NUMBER EMPLOYED	*TOTAL* GOODS	*TOTAL* SERVICES	*SAMPLE* GOODS	*SAMPLE* SERVICES	*RETURN* GOODS	*RETURN* SERVICES
1	1-4	11,358	54,925	209	949	53	209
		8.1%	*39.6%*	*2.5%*	*11.1%*	*2.0%*	*7.7%*
2	5-9	5,729	24,055	260	1,015	83	318
		4.1%	*17.3%*	*3.1%*	*11.9%*	*3.1%*	*11.7%*
3	10-19	4,466	14,848	331	1,048	126	325
		3.2%	*10.7%*	*3.9%*	*12.3%*	*4.6%*	*12.0%*
4	20-49	3,519	9,607	385	1,020	147	316
		2.5%	*6.9%*	*4.6%*	*12.0%*	*5.4%*	*11.7%*
5	50-99	1,383	3,744	313	787	104	253
		1%	*2.6%*	*3.7%*	*9.2%*	*3.8%*	*9.3%*
6	100-249	910	2,229	241	577	81	209
		.7%	*1.6%*	*2.8%*	*6.8%*	*3.0%*	*7.7%*
7	250-499	331	809	181	406	66	143
		.2%	*.4%*	*2.1%*	*4.8%*	*2.4%*	*5.7%*
8	500-999	140	339	132	346	43	135
		.1%	*.24%*	*1.6%*	*4.1%*	*1.6%*	*5.0%*
9	1000 +	119	218	120	217	40	90
		.08%	*.16%*	*1.4%*	*2.5%*	*1.5%*	*3.3%*
Total		27,955	110,774	2,172	6,365	743	2,009
		20%	*80%*	*25%*	*75%*	*27%*	*73%*

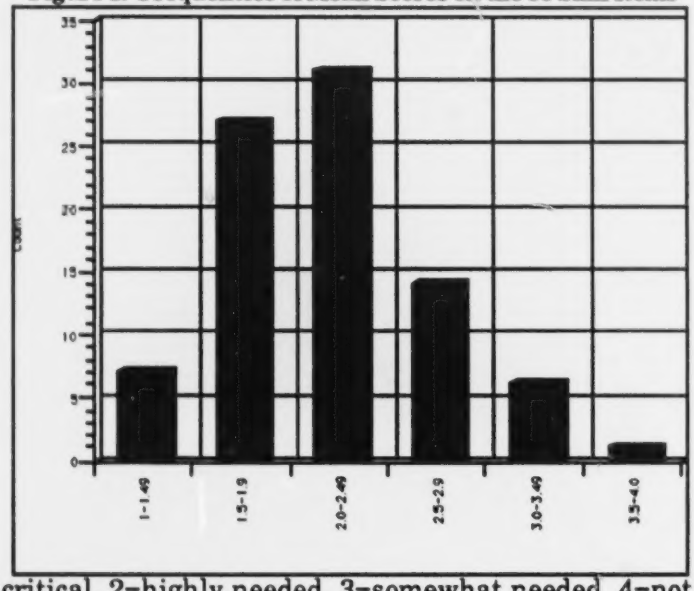
Cell frequencies represent actual count; percentages are based on column fraction of total count for that cell.

Results

Overall Results

The histogram displayed in Figure 1 shows how well the task force did in finding skills that were considered to be important by employers.

Figure 1: Frequencies of Mean Scores on the 86 Skill Items



Recall that 1 is critical, 2=highly needed, 3=somewhat needed, 4=not needed.

It is readily seen that almost all of the 86 skills were rated to some extent within a "Needed" category. The overall grand mean was 2.1 ("Highly Needed"). Forty percent of the skills received mean responses higher than the category of "Highly Needed," and 76% of the skills received ratings above the mid-point on the scale. Table 2 presents a univariate description of the results.

TABLE 2.
Univariate Results by Item
(Percent Responding by Item & by Response Category)

			Percent of Respondents		
SURVEY ITEM NO.	MEAN*	CRITICAL	HIGHLY NEEDED	SOME-WHAT NEEDED	NOT NEEDED
ACADEMIC (Questions 1 - 47)					
Q1 pay attention to speaker	1.4	62	33	3.0	0.1
Q2 ask/clarify	1.5	53	39	6.0	0.5
Q3 follow directions	1.4	61	34	3.0	0.0
Q4 answer questions	1.6	45	42	9.0	1.0
Q5 explain ideas	2.1	22	46	27	3.0
Q6 foreign language	3.9	0.6	0.5	9.0	87
Q7 business terms	2.2	21	39	32	6.0
Q8 signs and symbols	2.1	29	34	26	9.0
Q9 read simple instructions	1.6	53	34	9.0	1.0
Q10 read complex instructions	2.1	32	35	23	8.0
Q11 follow written instructions	2.0	31	40	19	6.0
Q12 evaluate written materials	2.1	27	40	24	7.0
Q13 read various materials	2.1	28	35	25	9.0
Q14 combine / use information	2.3	21	35	28	11
Q15 write legibly	2.0	31	43	21	3.0
Q16 spell correctly	2.1	25	39	27	6.0
Q17 correct punctuation /grammar	2.5	19	27	32	19
Q18 writing on job	2.5	18	29	31	18
Q19 write orders	2.2	27	35	25	11
Q20 basic calculations	1.8	45	34	16	4.0
Q21 calc fractions/percent/decimals	2.4	23	28	30	17
Q22 read charts/diagrams	2.7	14	26	35	23
Q23 US measure	2.4	23	26	30	18
Q24 metric measure	3.3	7.0	11	27	53
Q25 calculate distance/weight	3.0	10	18	31	38
Q26 apply probability/statistics	3.2	5.0	15	32	46
Q27 estimate numerical result	2.8	12	24	30	32
Q28 estimate cost/time	2.7	14	24	32	26
Q29 know where special informatio	2.2	25	37	28	9.0
Q30 distinguish fact/fiction	2.3	23	37	29	9.0
Q31 new technology	2.3	20	38	28	12
Q32 understand computer/data pro	2.9	12	24	26	35
Q33 apply knowledge natural scien	3.3	6.0	10	27	53
Q34 apply knowledge social science	3.2	4.0	15	32	45
Q35 operate tools/equipment	2.6	23	19	27	29
Q36 determine right tool	2.5	23	26	23	25
Q37 follow equipment safety rules	2.1	39	23	18	17
Q38 use calculators	2.5	21	27	30	20

*MEAN is computed by averaging the following codes:
1 = Critical
2 = Highly Needed
3 = Somewhat Needed
4 = Not Needed

(Table 2 continued on next page)

Table 2 continued.
Univariate Results by Item
(Percent Responding by Item & by Response Category)

SURVEY ITEM NO.	MEAN*	CRITICAL	Percent of Respondents HIGHLY NEEDED	SOME-WHAT NEEDED	NOT NEEDED
Q39 keyboarding skills	2.9	13	21	25	39
Q40 computer applications	2.9	15	19	23	42
Q41 programming	3.4	4.0	11	24	59
Q42 recognize/define problems	1.8	37	43	16	3.0
Q43 describe work problems	2.3	25	39	25	13
Q44 determine source problems	2.2	23	40	25	8.0
Q45 new problem solving	2.4	16	37	32	14
Q46 select best solution	2.1	28	41	21	7.0
Q47 carry out/evaluate decisions	2.2	21	41	27	9.0
PERSONAL MANAGEMENT (Questions 48 - 73)					
Q48 personal goals	2.5	11	38	37	12
Q49 plan achieve career goals	2.7	9	32	39	17
Q50 self -confidence/esteem	1.9	27	55	14	2.0
Q51 generalize skills	2.0	23	50	19	4.0
Q52 employees rights/resp	2.5	13	31	41	13
Q53 support organization	2.3	15	44	29	29
Q54 respect others	1.4	62	33	3.0	0.0
Q55 pride in work	1.4	61	35	2.0	0.3
Q56 show enthusiasm for work	1.5	53	41	4.0	0.2
Q57 honesty/integrity	1.2	77	20	0.9	0.0
Q58 punctuality and attendance	1.4	62	34	2.0	0.2
Q59 organize/complete tasks	1.7	40	47	9.0	0.9
Q60 self-starter	1.6	44	47	6.0	0.4
Q61 exceed requirements	1.6	43	51	4.0	0.1
Q62 handle pressures	1.6	46	45	6.0	0.7
Q63 follow safety practices	1.9	45	28	12	13
Q64 demonstrate self-control	1.6	49	42	6.0	0.1
Q65 grooming	1.7	43	43	11	0.9
Q66 free from substance abuse	1.2	81	15	1.0	0.4
Q67 work minimum supervision	1.5	50	45	2.0	0.0
Q68 update self skills	2.0	22	56	20	2.0
Q69 positive attitude growth	1.8	32	57	8.0	0.5
Q70 adapt able/flexible to change	1.7	36	53	8.0	0.3
Q71 participate educ/training	2.1	25	46	23	4.0
Q72 creativity/imagination	2.1	25	45	25	2.0
Q73 generate new ideas	2.1	22	49	24	2.0
TEAMWORK (Questions 74 - 86)					
Q74 accept mission	1.8	36	50	12	1.0
Q75 represent organiz'n positively	1.6	44	46	8.0	0.4
Q76 follow rules/procedures	1.6	43	48	7.0	0.5
Q77 interest organiz'n future	1.8	33	52	12	0.7
Q78 use team approach to problems	2.0	27	49	19	3.0
Q79 communicate with team	1.7	43	47	9.0	0.9
Q80 compromise	1.9	28	51	17	2.0
Q81 sensitivity to thoughts/others	1.8	32	53	11	1.0
Q82 accept team decisions	1.8	31	54	11	1.0
Q83 when to lead/follow	2.1	22	50	22	4.0
Q84 cooperate with others	1.6	42	49	6.0	0.4
Q85 accept criticism	1.7	36	54	8.0	0.4
Q86 sensitivity women/minorities	2.1	29	40	22	6.0

*MEAN is computed by averaging the following codes:
1 = Critical
2 = Highly Needed
3 = Somewhat Needed
4 = Not Needed

The Skills Ranked as Most Critical

Table 3a shows the seven most critical skills according to their average (mean) scores. It was not surprising to us that being **free from substance abuse** was the most "Critical" skill. The most surprising result is that 5 out of 7 (71%) skills were in the Personal Management area. These deal with **honesty, being on time, pride and respect**, etc., which are not emphasized in current education and training programs. Traditionally, these skills have been taught by parents in the home. Has the home environment abandoned these skills? Should the schools and training programs begin teaching them?[3]

TABLE 3a.
Seven Most Critical Skills
(mean ratings less than 1.5)

ITEM NO.	ITEM	MEAN	AREA
66.	Be free from substance abuse	1.2	Personal Management
57.	Demonstrate honesty and integrity	1.2	Personal Management
1.	Pay attention to the person speaking	1.4	Academic
3.	Follow directions given verbally	1.4	Academic
54.	Show respect for others	1.4	Personal Management
55.	Show pride in one's work	1.4	Personal Management
58.	Be punctual and in attendance	1.4	Personal Management

Table 3b continues the dominant trend of Personal Management Skills (50% of the table). The three Teamwork skills (which deal with **cooperation** and **representing the organization**), combined with the Personal Management skills, account for 67% of this table. The Academic skills here, just as in Table 3a, appear to have a Personal Management aspect to them as well.

TABLE 3b.
Twelve Next- Most Critical Skills

ITEM NO.	ITEM	MEAN	AREA
2.	Ask questions to clarify understanding	1.5	Academic
56.	Show enthusiasm for work	1.5	Personal Management
67.	Work productively with minimal supervision	1.5	Personal Management
4.	Answer questions accurately	1.6	Academic
9.	Read simple instructions	1.6	Academic
60.	Show initiative	1.6	Personal Management
61.	Meet or exceed work requirements	1.6	Personal Management
62.	Complete tasks under stress	1.6	Personal Management
64.	Demonstrate self-control	1.6	Personal Management
75.	Represent organization positively	1.6	Teamwork
76.	Follow organizational rules, etc.	1.6	Teamwork
84.	Cooperate with others	1.6	Teamwork

[3]There has been some argument as to whether these "skills" should more appropriately be called "behaviors, values, or attributes." The Task Force chose to call them skills to simplify the communication.

The Skills Ranked as Least Critical

The skills ranked least critical present two distinct problems: they are highly specific and relate to immediate, short-term needs. Remember that the employers were asked to respond for all employees, i.e., to identify the generic skills that might be considered required for every job classification. The skills on this list were all Academic. In jobs such as foreign language translation, the primary skill would be **knowledge of a foreign language** so it may be that the scale measures more specificity than what might be termed "Need." It is interesting to note that skills such as **metric measurement** appear in the lower ranking; from a strategic standpoint, the need for metric literacy is high and growing. It would appear that businesses are not gearing their thinking toward this need. With environmental problems becoming more and intractible, it is difficult to understand why employers do not rate **knowledge of natural science** higher. It may be that employers were thinking more of traditional academic science programs, which might need to be examined to see if they are fulfilling the needs of understanding science as the employers understand it.

TABLE 3c.
Seven Least Critical Skills

ITEM NO.	ITEM	MEAN	AREA
25.	Calculate distance, weight, etc.	3.0	Academic
26.	Understand & apply simple prob. & stats.	3.2	Academic
34.	Apply basic knowledge of social sciences	3.2	Academic
24.	Measure using metric measuring system	3.3	Academic
33.	Apply basic knowledge of natural sciences	3.3	Academic
41.	Demonstrate computer programming	3.4	Academic
6.	Understand a foreign language	3.9	Academic

Clusters of Skills

With so many isolated skills, a cluster analysis was performed to determine whether some of these items could be grouped into major families. The results of the cluster analysis are presented in Appendix D. The mean responses of the eight resulting clusters are presented in Table 4.

Table 4.
Average of Skills Weighted by Cluster

CLUSTER	Mean Response
C1: Communication	2.1
C2: Applied Science and Technology	3.1
C3: Quantitative/Analytical	2.5
C4: Work Place Environment	2.2
A1: Responsibility/Values	1.4
A2: Career Development	2.3
A3: Teamwork	1.8
A4: Dealing with Change	1.8

*MEAN is computed by averaging the following codes:
1 = Critical 3 = Somewhat Needed
2 = Highly Needed 4 = Not Needed

The eight areas presented in Table 4 seemed to give us consistent combinations of skills, thereby simplifying the interpretation of the results. They allowed us to analyze the survey using the eight clusters as the central themes. We developed a series of "targets" based upon this clustering, where the more general skills (determined by a lower average score meaning "more Critical") were in the center of the target and more specific skills (such as foreign language) were in the outer rings. The "targets" are presented in Figures 2 through 9. It is interesting to note that our clusters are very similar to the findings of Carnevale, et al. (1988)[4]

Analysis of Open-Ended Questions

Analysis of open-ended questions revealed a different picture. The open-ended responses were analyzed by two raters who were blind to the survey results and to the basic assumptions. They were asked to look over the responses and to create categories, building each time on the existing categories that they had just created. The thematic analysis of this data reveals a greater emphasis on Academic skills. Since (a) not all respondents completed this section, and (b) the respondents were coded for all multiple themes, this did not represent a generalizable reflection of all of the survey respondents. In discussing future occupations, however, it is interesting to note the kinds of skills that were mentioned in Table 5.

[4]Carnevale, A.P., Gainer, L.J. , & Meltzer, A.S. (1988). Work Place Basics: The Skills Employers Want (Publication No. 0 - 225-795 QL.2). Washington, DC: U.S. Government Printing Office.

TABLE 5
Regrouping of Thematic Analysis of Open-ended Question

Theme		Number of Responses
Academic		
1.	Spoken Language	511
2.	Read	562
3.	Write	241
4.	Basic Arithmetic	364
5.	Specialized Knowledge	83
6.	Use Tools & Equipment	505
7.	Solve Problems	240
Total Academic:		2,506
Personal Management-General		51
8.	Job Related Interests	61
9.	Values & Ethics	524
10.	Responsible	382
11.	Learn New Skills	681
Total Personal Management:		1,699
Teamwork-General		314
12.	Goals etc. of Group	97
13.	Work Teams	87
Total Teamwork:		498

Implications for Assessment

We are organizing our assessments around the three major themes of Academic, Personal Management, and Teamwork Skills. We are most comfortable with measuring the Academic skills, since there are numerous tests that adequately measure these. We do not see any need to reinvent assessment in these areas, although we are considering modifying the existing State educational assessment by reviewing some aspects to see if the content can be made more relevant to the concept of employability. The Personal Management and Teamwork skills are more problematic. Our initial review of the literature[5] found that the reliability and validity of Personal Management and Teamwork assessment instruments are not as high as those for Academic measures. We are presently reviewing assessment instruments (approaches) that can rate Personal Management behaviors and that enhance observation of Teamwork behaviors.

Because of the complexity of the assessment requirements (in terms of the three dimensions, and the depth of skills within any given area and the variety of different skills needed depending on the career aspirations of the client), we have focused our efforts on building a prototype for a portfolio that would facilitate multiple assessments in each of the three areas. We are now beginning work with referent groups to define standards for what that portfolio might look like, and how it could be used to match job skills with career goals and training needs. We are also surveying the best assessment practices used in this state (and nationally) which

---

[5]Miller, J.V., & Pfister, L.A. (1988). **Employability Skills Assessment Literature Review**. Prepared for the Michigan Department of Education, Office of Technical Assistance & Evaluation, Michigan Educational Assessment Program.

focus on these three areas. We are hoping that the portfolio will be individualized and avoid creating ceilings and floors of skill levels. It should reflect the individual's actual skills and serve as an organizational tool for career planning, resume building, and providing a job skill inventory for the employer.

A Bold Step

The Michigan Opportunity Card

The paperwork required to monitor state programs and individual information for Job Training Partnership Act (JTPA) programs, community colleges, other state and private training efforts, and employee skills presents a formidable challenge to effective coordination. In order to meet this challenge, the Governor's Commission on Jobs and Economic Development has proposed the introduction of the Michigan Opportunity Card. This is a credit-card-size "smart card" with a built-in computer chip for storing thousands of pieces of information. The card may be inserted into a card-reader which will extract the essential information needed for determining the individual's needs, strengths, weaknesses, financial standing, etc., relative to the program(s) of that agency.

The M.O.C. is already being used to monitor the Tuition Incentive Plan (T.I.P.) program which sets up a state fund for needy students to pay costs at a community college. Each qualified participant receives a card which includes the amount of funds available (automatically transferred to the account of the community college at the time of enrollment in th training program), the student's program of study, and the record of progress to date. This greatly reduces the need for paperwork in the T.I.P. system.

Soon, it is planned to have M.O.C.'s offered to all graduating seniors, Michigan Youth Corps enrollees, and dislocated workers. Core services would include:

a. inventory of job training, education, and employment related community support services;

b. assessment of the card holder's basic academic and occupational skill needs, interests, employability, and achievements using valid, reliable, standardized and appropriate instruments;

c. eligibility for funding and/or services;

d. individualized personal plan of action (PPA) for achieving and managing employment, training, and education goals;

e. basic employability skills training to help every adult obtain the academic, personal management and teamwork skills necessary for existing and future jobs; and

f. job placement assistance.

In the future, the results of a prospective employee's employability skills assessment may also be stored on the card. Prospective employers would be permitted access, on a "need to know" basis, to relevant, public information as released by the candidate.

Full consideration of privacy requirements would be attended to in the access codes of the employer and employee, to protect the individual's rights.

The M.O.C. could be integrated with the portfolio concept, with card being the electronic version. Refinements in both the card and the experience with the portfolio will complement one another.

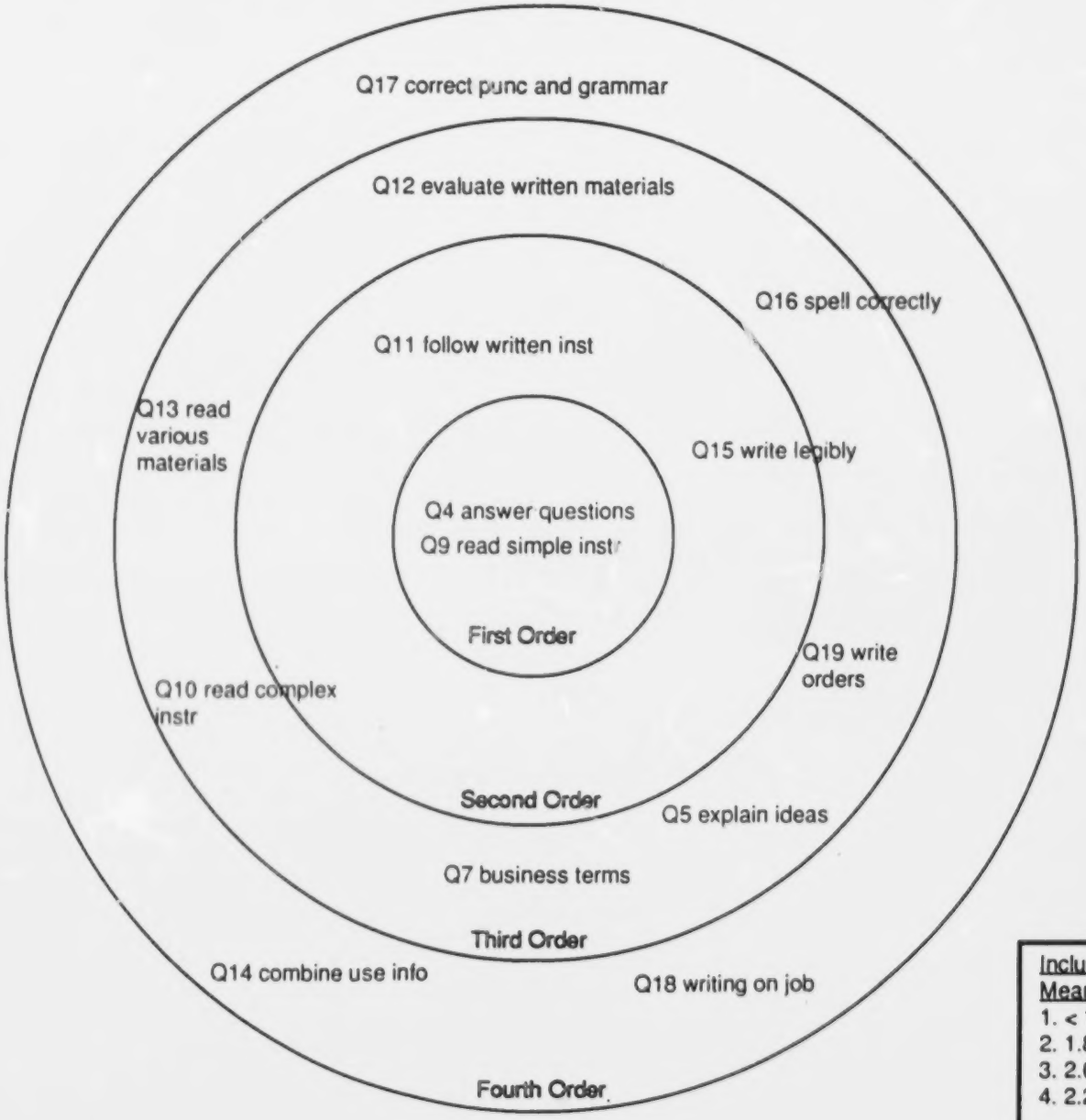
Limitations of the Survey

The response rate of 37% on the Employer Survey leaves open the question of how representative the sample was. We did not consider a response by 2,700 individuals to be a small number. An analysis of pilot studies of the survey did not reveal any bias, but non-response bias cannot be ruled out.

After analyzing the results, we interpreted the responses to be more reflective of specificity than the "criticalness" of the need for the skill. We believe that further surveys are needed to address both the need and the prevalence of the skills. A similar study that addresses more specific occupations (rather than asking respondents to complete the survey generally, across all occupations) would probably yield more reliable and valid results. It also seemed to us that respondents were most concerned about immediate needs, rather than future needs. Perhaps this accurately reflects their thinking. But there was an indication in the open-ended responses that asking employers to think about future skill needs provokes a very different set of responses. Another problem with surveys of this type is the nature of the respondents. The respondents in this survey were heads of personnel departments, owners (in the case of small businesses), and CEO's in the smaller businesses that had no personnel departments. It is not clear how much these respondents could adequately estimate the skill needs across an entire organization.

In summary, we believe that the insistence of the Task Force on focusing on the three areas of Academic, Personal Management, and Teamwork seems justified by the responses of this survey. We feel we can tell the public with some confidence that the skills contained in the Profile represent many of those sought by Michigan employers. The results of the survey, and continuing work on refining our understanding of the skills, will serve as a guideline for assessment and training development.

Figure 2. C1: Communication



Inclusion Criteria Mean Scores
1. < 1.825
2. 1.826-2.050
3. 2.051-2.275
4. 2.276+

Figure 2

Figure 3. C2: Applied Science and Technology

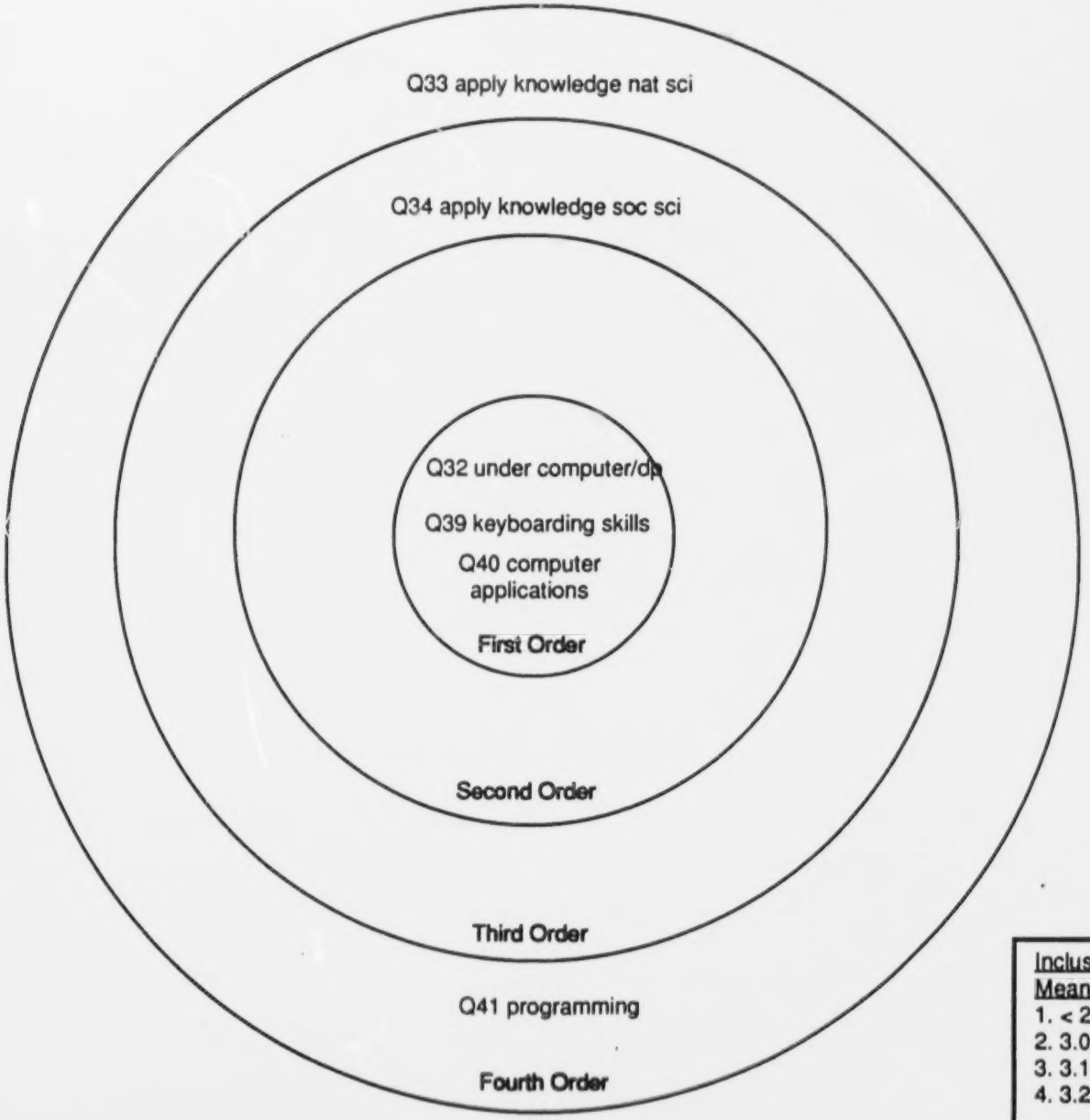
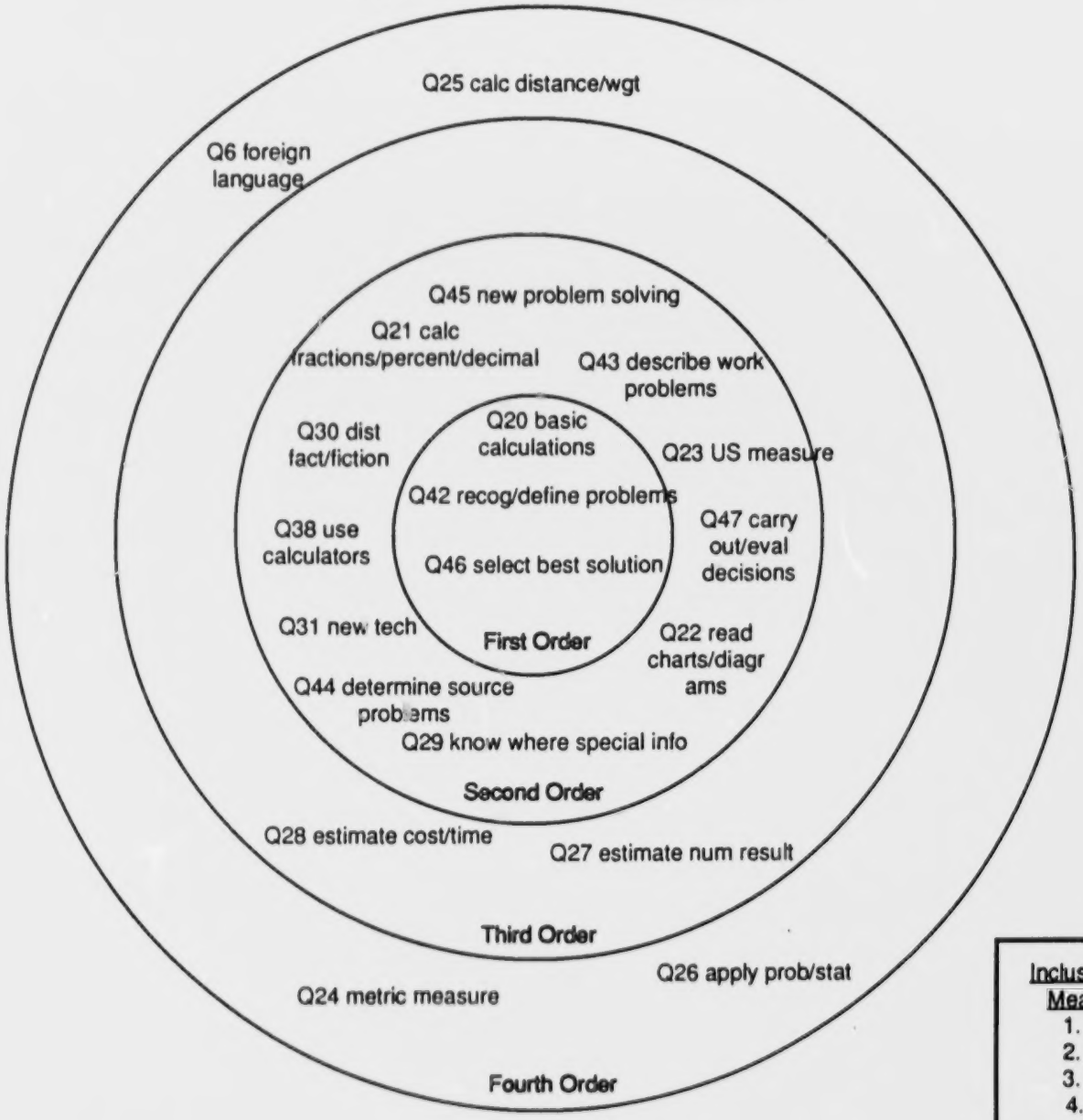


Figure 3

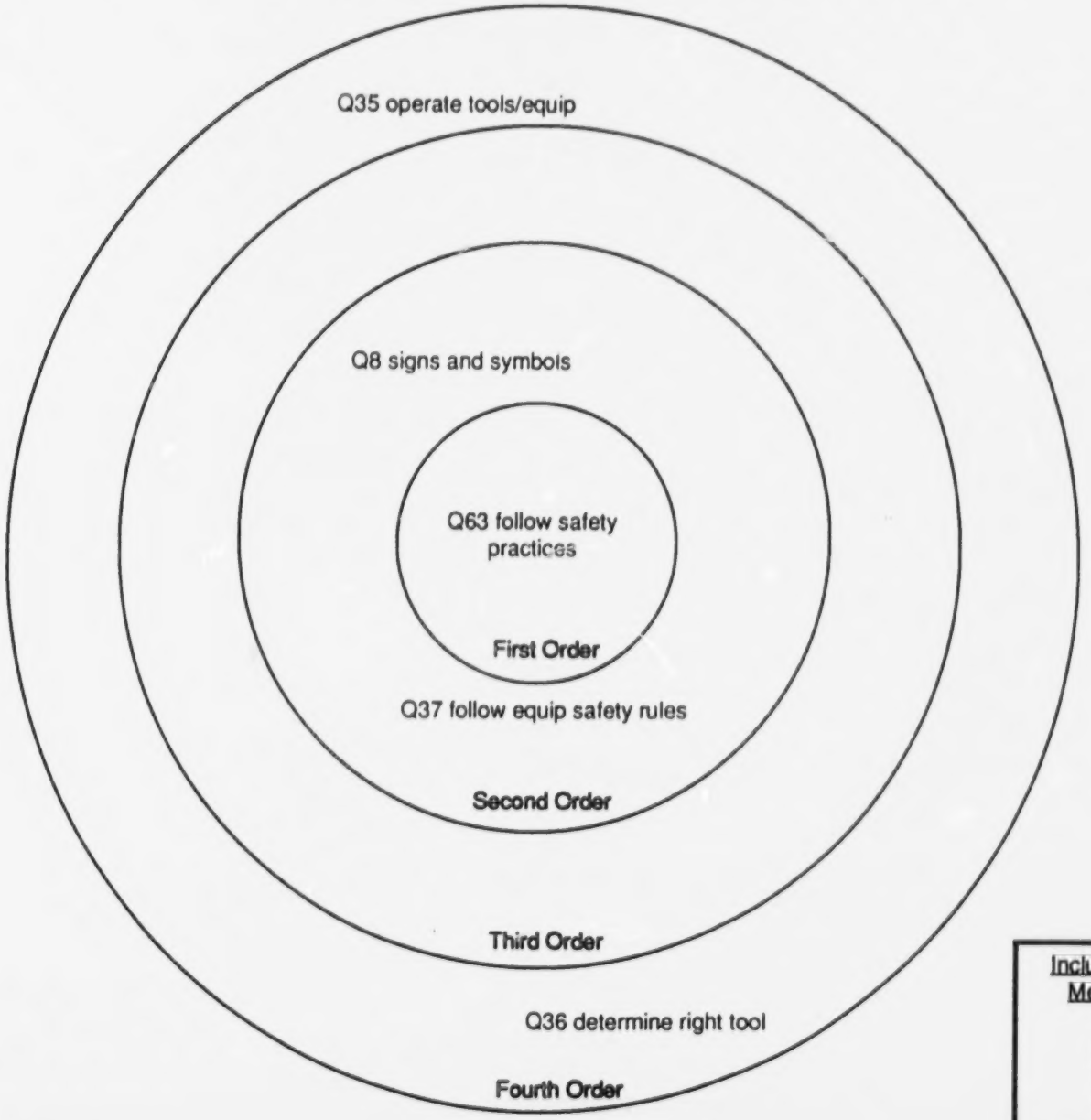
Figure 4. C3: Quantitative/Analytical



Inclusion Criteria Mean Scores
1. < 2.175
2. 2.176-2.550
3. 2.551-2.925
4. 2.926+

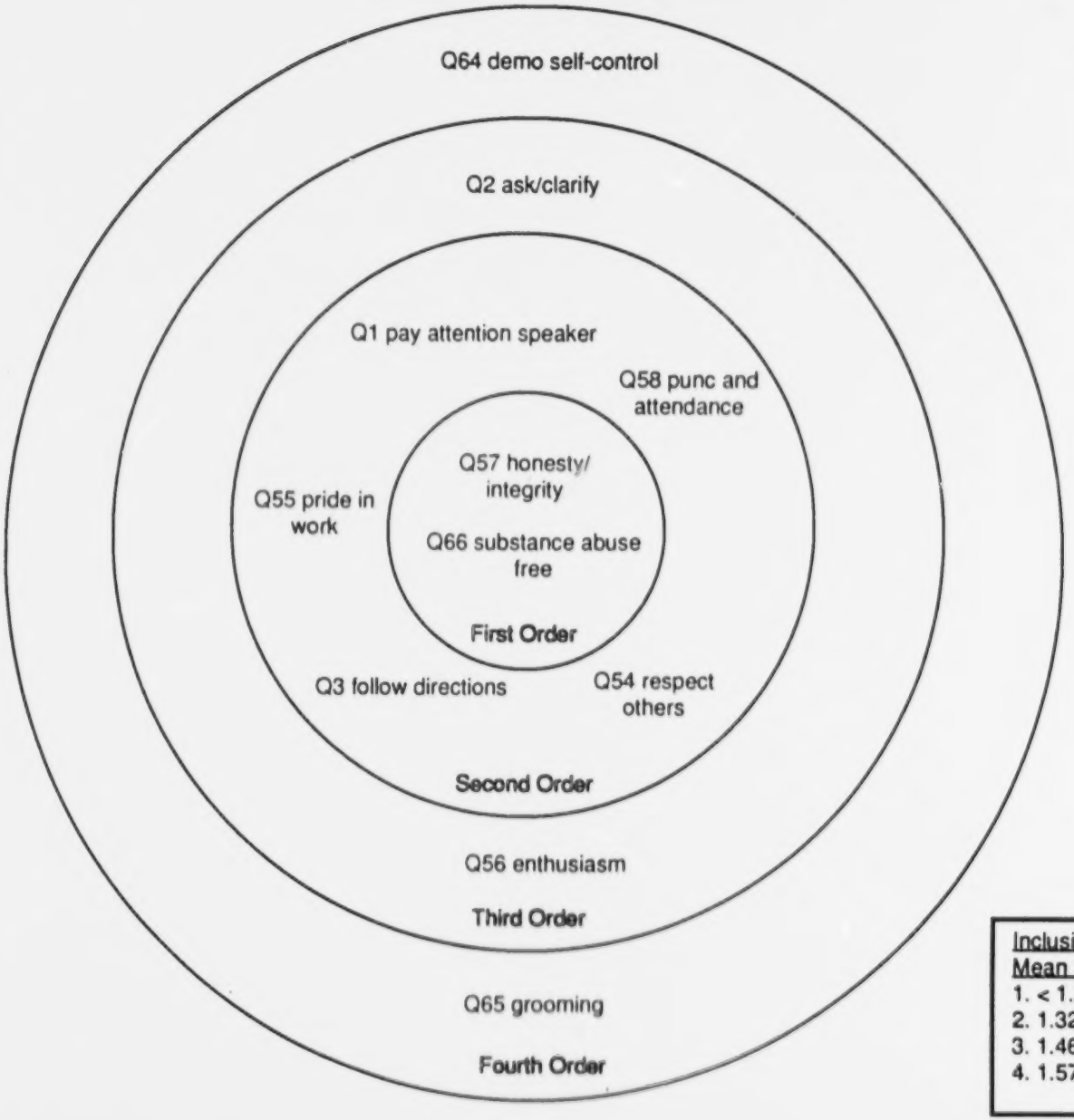
Figure 4

Figure 5. C4: Workplace Environment



Inclusion Criteria Mean Scores
1. < 2.0
2. 2.076-2.25
3. 2.26-2.425
4. 2.426+

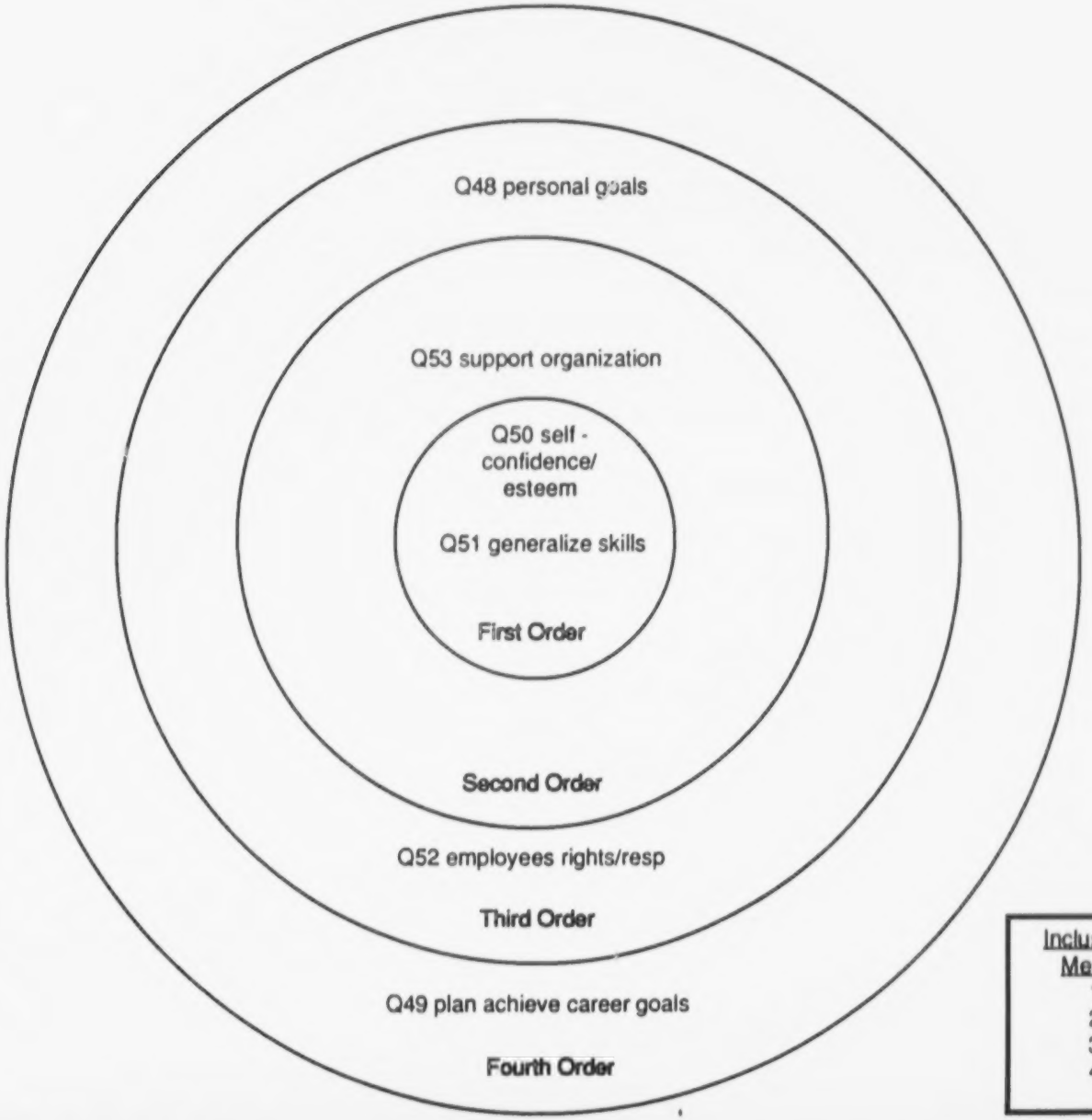
Figure 6. A1: Responsibility/Values



Inclusion Criteria Mean Scores
1. < 1.325
2. 1.326-1.45
3. 1.46-1.575
4. 1.576+

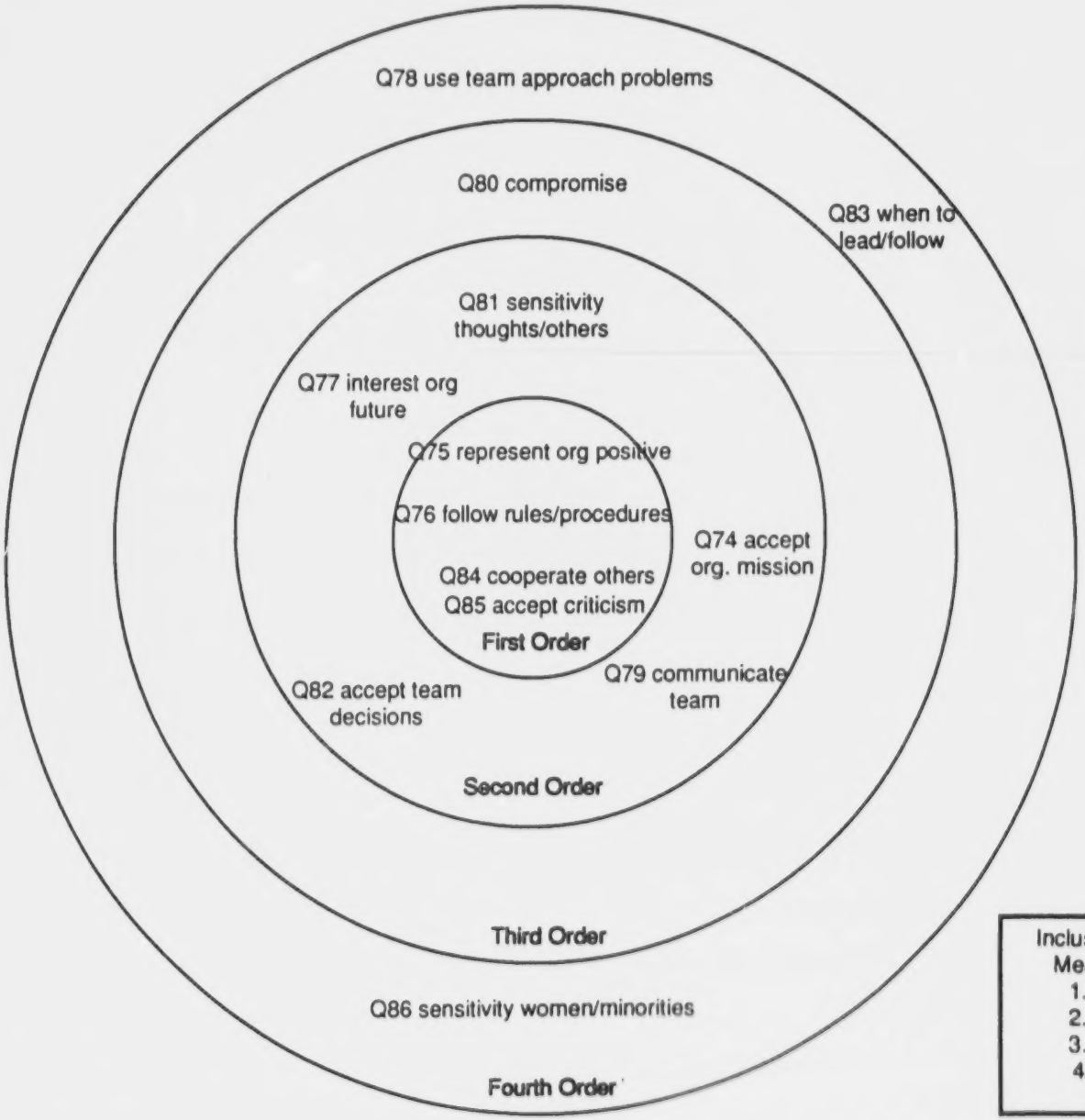
Figure 6

Figure 7. A2: Career Development



Inclusion Criteria Mean Scores
1. < 2.1
2. 2.11-2.3
3. 2.31-2.5
4. 2.51+

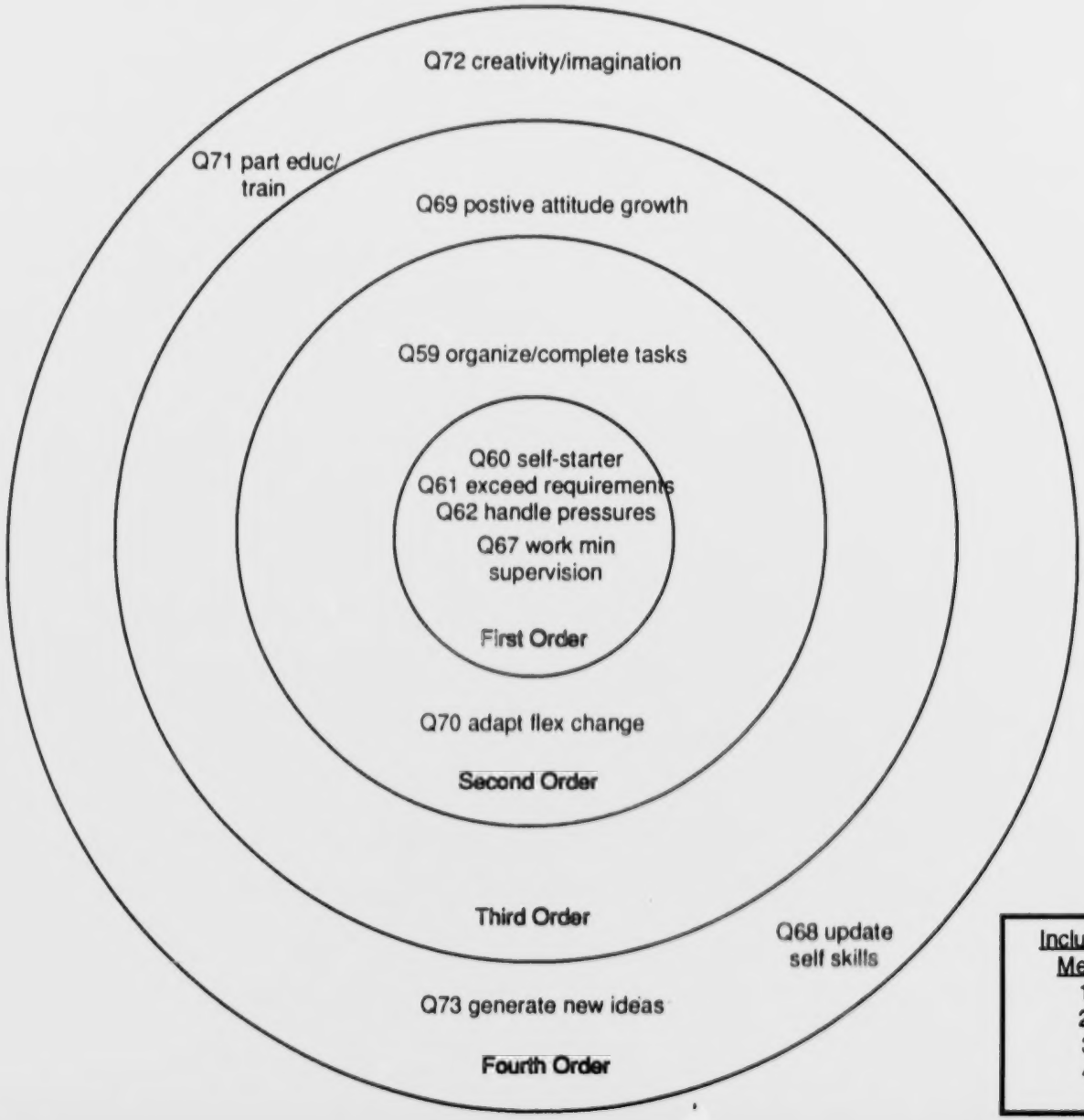
Figure 8. A3: Teamwork



Inclusion Criteria
Mean Scores
1. < 1.725
2. 1.726-1.85
3. 1.86-1.975
4. 1.976+

Figure 8

Figure 9. A4: Dealing with Change



EMPLOYABILITY SKILLS PROFILE

Three Categories of skills will be required of Michigan workers in the future:

ACADEMIC SKILLS (Those skills which provide the basic foundation necessary for a person to get, keep, and progress on a job)	PERSONAL MANAGEMENT SKILLS (Those skills related to developing the attitudes and behaviors required to get, keep, and progress on a job)	TEAMWORK SKILLS (Those skills needed to work with others on a job)
MICHIGAN EMPLOYERS WANT A PERSON WHO CAN:	MICHIGAN EMPLOYERS WANT A PERSON WHO CAN:	MICHIGAN EMPLOYERS WANT A PERSON WHO CAN:
o Understand spoken language and speak in the language in which business is conducted. o Read written materials (including graphs, charts and displays). o Write in the language in which business is conducted. o Understand and solve problems involving basic arithmetic and use the results. o Use the tools and equipment necessary to get a job done. o Access and use specialized knowledge when necessary (e.g., the sciences or skilled trades) to get a job done. o Think and act logically by using the steps of the Scientific Method (i.e., identify problems, collect information, form opinions and draw conclusions).	o Identify personal job-related interests, strengths, options and opportunities. o Demonstrate personal values and ethics in the workplace (e.g., honesty, fairness, and respect for others). o Exercise a sense of responsibility. o Demonstrate self control. o Show pride in one's work. o Be enthusiastic about the work to be done. o Follow written or verbal directions. o Learn new skills and ways of doing things. o Identify and suggest new ideas for getting a job done. o Be a leader or a follower depending upon what is necessary to get a job done.	o Identify with the goals, norms, values, customs and culture of the group. o Communicate with all members of a group. o Show sensitivity to the thoughts and opinions of others in a group. o Use a team approach to identify problems and devise solutions to get a job done. o Exercise "give and take" to achieve group results. o Function in changing work-settings and in changing groups. o Determine when to be a leader or a follower depending upon what is necessary to get a job done. o Show sensitivity to the needs of women and ethnic and racial minorities. o Be loyal to a group.

Clustering of Employability Skills Profile

(Crosswalk between Task Force Profile and Survey Items)

Area	Cognitive Domain			
	C1. Communication	C2. Science/ Technology	C3. Numerical/ Complex Problems	C4. Workplace Environment
Academic Skills				
Spoken Language	4,5,7		6	
Read Written Materials	9,10,12,13,14			8
Basic Arithmetic	15,16,17,18,19		20 through 28	
Use Tools and Equipment		39,40,41	38	35,36,37
Access/Use Specialized Knowledge		32,33,34	29,30,31	
Think and Act Logically			42 through 47	
Personal Management Skills				
Identify Personal Strengths				
Demonstrate Personal Values				
Exercise Sense of Responsibility				63
Demonstrate Self-Control				
Show Pride in One's Work				
Follow Written/Verbal Directions	11			
Learn New Skills				
Identify/Suggest New Ideas				
Determine When to Lead or Follow				
Teamwork Skills				
Identify with Goals & Norms				
Communicate Effectively				
Show Sensitvity to Opinions of Others				
Use Team Approach				
Exercise "Give and Take"				
Function in Changing Settings				
Determine When to Lead or Follow				
Show Sensitivity to Others				
Be Loyal to a Group				

Clustering of Employability Skills Profile

(Crosswalk between Task Force Profile and Survey Items)

Area	Affective Domain			
	A1. Responsibility	C2. Career Development	A3. Teamwork	A4. Dealing with Change
Academic Skills				
Spoken Language	1,2,3			
Read Written Materials				
Basic Arithmetic				
Use Tools and Equipment				
Access/Use Specialized Knowledge				
Think and Act Logically				
Personal Management Skills				
Identify Personal Strengths		48 through 53		
Demonstrate Personal Values	54,57			
Exercise Sense of Responsibility	58,65,66			59,60,61,62,67
Demonstrate Self-Control	64			
Show Pride in One's Work	55			
Follow Written/Verbal Directions	56			
Learn New Skills				68,69,71
Identify/Suggest New Ideas				72,73
Determine When to Lead or Follow			83	
Teamwork Skills				
Identify with Goals & Norms			74,77	
Communicate Effectively			79	
Show Sensitvity to Opinions of Others			81	
Use Team Approach			78	
Exercise "Give and Take"			80,82,84,85	
Function in Changing Settings				70
Determine When to Lead or Follow				
Show Sensitivity to Others			86	
Be Loyal to a Group			75,76	

APPENDIX C THE MICHIGAN EMPLOYABILITY SKILLS SURVEY - 1989

Confidential

ROUTE TO DIRECTOR OF PERSONNEL

MICHIGAN EMPLOYABILITY SKILLS TASK FORCE — MICHIGAN DEPARTMENT OF EDUCATION

Title of the person completing this survey:

Director of Personnel/Human Resources..... o
President/Owner/CEO..... o
Other_____ o

Address if different from label:

_____
_____
_____
_____

DIRECTIONS for filling out this survey:

- Use a #2 pencil.
- Fill in each circle that best represents your response.
- Fill in only one circle for each skill.
- Erase any answer your wish to change.

Once completed, return the survey in the pre-addressed, stamped envelope by April 7, 1989
Please direct questions to Paul Stemmer, Educational Research Consultant, at (517) 373-4311.

Each item in this survey describes a basic skill, behavior, or attitude employers might seek in people they hire for jobs -- regardless of job level (e.g., entry vs. advanced) or type of job (e.g., technical vs. non-technical).

Use the SCALE below to indicate how important it is for people you hire to have each skill, behavior, or attitude listed.

CRITICAL — HIGHLY NEEDED (but not critical) — SOMEWHAT NEEDED (but not required) — NOT NEEDED

Please fill in the appropriate circle to the right of each item to indicate how important it is for people you hire to have it. Choose only ONE response for each item:

SECTION I: ACADEMIC SKILLS

In my business, I need employees who can:	CRITICAL	HIGHLY NEEDED	SOMEWHAT NEEDED	NOT NEEDED
UNDERSTAND SPOKEN LANGUAGE AND SPEAK IN THE LANGUAGE IN WHICH BUSINESS IS CONDUCTED				
1. Pay attention to the person speaking	O	O	O	O
2. Ask questions to clarify understanding	O	O	O	O
3. Follow directions given verbally	O	O	O	O
4. Answer questions accurately	O	O	O	O
5. Explain ideas to others	O	O	O	O
6. Understand a foreign language	O	O	O	O
7. Recognize and use specific company and business terminology	O	O	O	O
READ WRITTEN MATERIALS				
8. Recognize and understand signs and symbols in the workplace	O	O	O	O
9. Recognize and understand enough words to read simple instructions	O	O	O	O

1

PLEASE CONTINUE ON NEXT PAGE

In my business, I need employees who can:	CRITICAL	HIGHLY NEEDED	SOMEWHAT NEEDED	NOT NEEDED
10. Recognize and understand enough words to read complex instructions	O	O	O	O
11. Follow written instructions required for new tasks	O	O	O	O
12. Understand and evaluate written materials	O	O	O	O
13. Know how to read and use different kinds of written materials at work (e.g., letters, memos)	O	O	O	O
14. Combine and use information from several different sources	O	O	O	O
WRITE IN THE LANGUAGE IN WHICH BUSINESS IS CONDUCTED				
15. Write legibly	O	O	O	O
16. Spell correctly	O	O	O	O
17. Write sentences and paragraphs using correct punctuation and grammar	O	O	O	O
18. Organize and translate thoughts into written communication	O	O	O	O
19. Use writing as a normal part of the job (e.g., messages, job orders, notes)	O	O	O	O
UNDERSTAND AND SOLVE PROBLEMS INVOLVING BASIC ARITHMETIC AND USE THE RESULTS				
20. Perform basic calculations (addition, subtraction, multiplication, division)	O	O	O	O
21. Perform calculations involving fractions, decimals, percentages, and ratios	O	O	O	O
22. Read and understand diagrams, charts, graphs, and tables	O	O	O	O
23. Measure using U.S. measuring system	O	O	O	O
24. Measure using metric measuring system	O	O	O	O
25. Calculate distance, weight, area, volume, and time	O	O	O	O
26. Understand and apply simple probability and statistics (e.g. calculate averages)	O	O	O	O
27. Estimate numerical results and judge accuracy	O	O	O	O
28. Estimate cost, time, and materials necessary to complete a task	O	O	O	O
ACCESS AND USE SPECIALIZED KNOWLEDGE WHEN NECESSARY TO GET THE JOB DONE				
29. Know where and how to get specialized information	O	O	O	O
30. Distinguish between fact and personal opinion	O	O	O	O
31. Adapt work skills to new technology	O	O	O	O
32. Understand and use computer/data processing terminology	O	O	O	O
33. Apply basic knowledge of natural sciences (i.e. biology, chemistry, physics)	O	O	O	O
34. Apply basic knowledge of social sciences, arts and humanities	O	O	O	O
USE TOOLS AND EQUIPMENT NECESSARY TO GET A JOB DONE				
35. Operate technical equipment, instruments, and tools (e.g. gauges, meters, scales)	O	O	O	O
36. Determine the right tool for a task	O	O	O	O
37. Follow safety rules for specific equipment	O	O	O	O
38. Use calculators to solve problems	O	O	O	O

In my business, I need employees who can:	CRITICAL	HIGHLY NEEDED	SOMEWHAT NEEDED	NOT NEEDED
39. Demonstrate keyboarding skills	O	O	O	O
40. Use computer/data processing applications (e.g., word processing, business applications)	O	O	O	O
41. Demonstrate computer programming and networking skills	O	O	O	O
THINK AND ACT LOGICALLY TO SOLVE PROBLEMS				
42. Recognize and define problems on the job	O	O	O	O
43. Describe problems in the operation of equipment or in processes	O	O	O	O
44. Analyze problems to determine their source and importance	O	O	O	O
45. Develop and evaluate new approaches to problem solving	O	O	O	O
46. Select the best solutions to a problem	O	O	O	O
47. Carry out a decision and evaluate its effectiveness	O	O	O	O
SECTION II: PERSONAL MANAGEMENT SKILLS				
IDENTIFY PERSONAL JOB-RELATED INTERESTS, STRENGTHS, OPTIONS, AND OPPORTUNITIES				
48. Apply knowledge of one's personality traits (e.g.,interests, values, strengths and weaknesses) when setting personal goals	O	O	O	O
49. Follow a plan to achieve career goals	O	O	O	O
50. Exhibit self-esteem and self-confidence	O	O	O	O
51. Exhibit skills that apply to more than one job	O	O	O	O
52. Understand employees' legal rights and responsibilities	O	O	O	O
53. Pursue personal goals that support the organization's goals	O	O	O	O
DEMONSTRATE PERSONAL VALUES AND ETHICS IN THE WORKPLACE (E.G., HONESTY, FAIRNESS, AND RESPECT FOR OTHERS)				
54. Show respect for others	O	O	O	O
55. Show pride in one's work	O	O	O	O
56. Show enthusiasm for the work to be done	O	O	O	O
57. Demonstrate honesty and integrity	O	O	O	O
EXERCISE A SENSE OF RESPONSIBILITY				
58. Meet requirements for punctuality and attendance	O	O	O	O
59. Plan and organize to complete tasks	O	O	O	O
60. Show initiative; be a "self-starter"	O	O	O	O
61. Meet or exceed requirements for work quality	O	O	O	O
62. Complete tasks in the face of job pressures and stresses	O	O	O	O
63. Follow safety rules and practices (e.g., hazardous materials)	O	O	O	O
64. Demonstrate self-control	O	O	O	O
65. Demonstrate appropriate grooming and dress, and practice good personal hygiene	O	O	O	O
66. Be free from substance abuse (i.e., dependence on alcohol or drugs)	O	O	O	O
67. Work productively with minimum supervision	O	O	O	O

PLEASE CONTINUE ON NEXT PAGE

In my business, I need employees who can:	CRITICAL	HIGHLY NEEDED	SOMEWHAT NEEDED	NOT NEEDED
LEARN NEW SKILLS AND WAYS OF DOING THINGS				
68. Know when it is necessary to upgrade one's knowledge and skills	O	O	O	O
69. Demonstrate a positive attitude toward learning and growth	O	O	O	O
70. Be adaptable, flexible, and open to change	O	O	O	O
71. Participate in education and training	O	O	O	O
72. Use creativity and imagination on the job	O	O	O	O
73. Generate new ideas for getting a job done	O	O	O	O
SECTION III: TEAMWORK SKILLS				
IDENTIFY WITH THE GOALS, NORMS, VALUES, CUSTOMS, AND CULTURE OF THE GROUP				
74. Accept organization's mission and goals	O	O	O	O
75. Represent organization in a positive manner	O	O	O	O
76. Follow organizational rules, procedures, and policies	O	O	O	O
77. Show interest in organization's future	O	O	O	O
78. Use a team approach to identify problems and devise solutions	O	O	O	O
FUNCTION IN CHANGING WORK SETTINGS AND IN CHANGING WORK TEAMS				
79. Communicate effectively with all members of the work team	O	O	O	O
80. Compromise to achieve work team results	O	O	O	O
81. Show sensitivity to the thoughts and opinions of others in the work team	O	O	O	O
82. Accept decisions made by the work team	O	O	O	O
83. Determine when to be a leader or a follower	O	O	O	O
84. Cooperate with others to get the job done	O	O	O	O
85. Accept constructive criticism of performance and ideas	O	O	O	O
86. Show sensitivity to the needs of women and ethnic or racial minorities	O	O	O	O

What is the total number of employees hired in 1988?

How many employees of the total number reported above are entry-level?

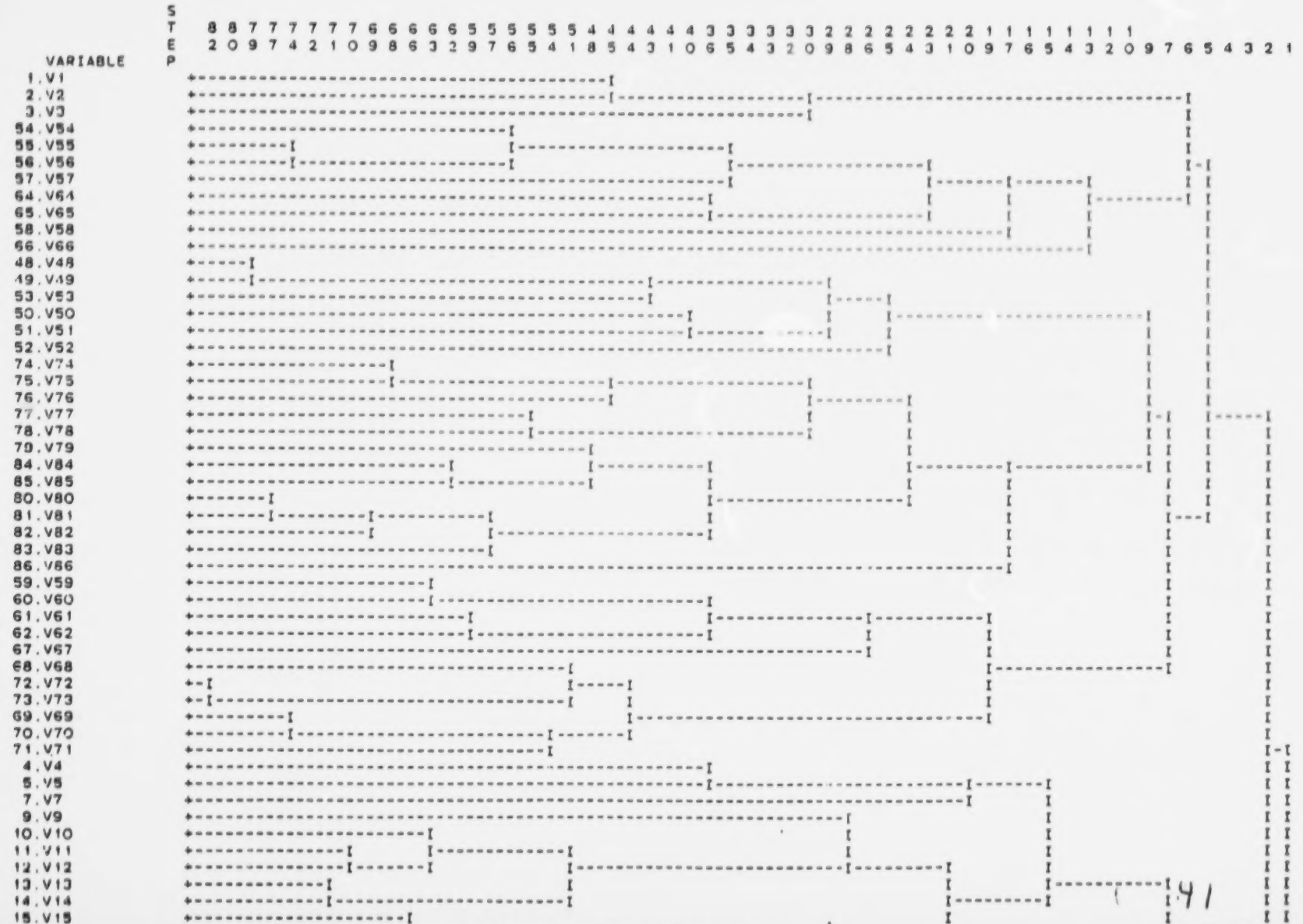
Choose the number which is closest to the percent of each of the following types of worker in your workforce.
Note: These are Equal Employment Opportunity-1 categories as established by the U.S. Government.

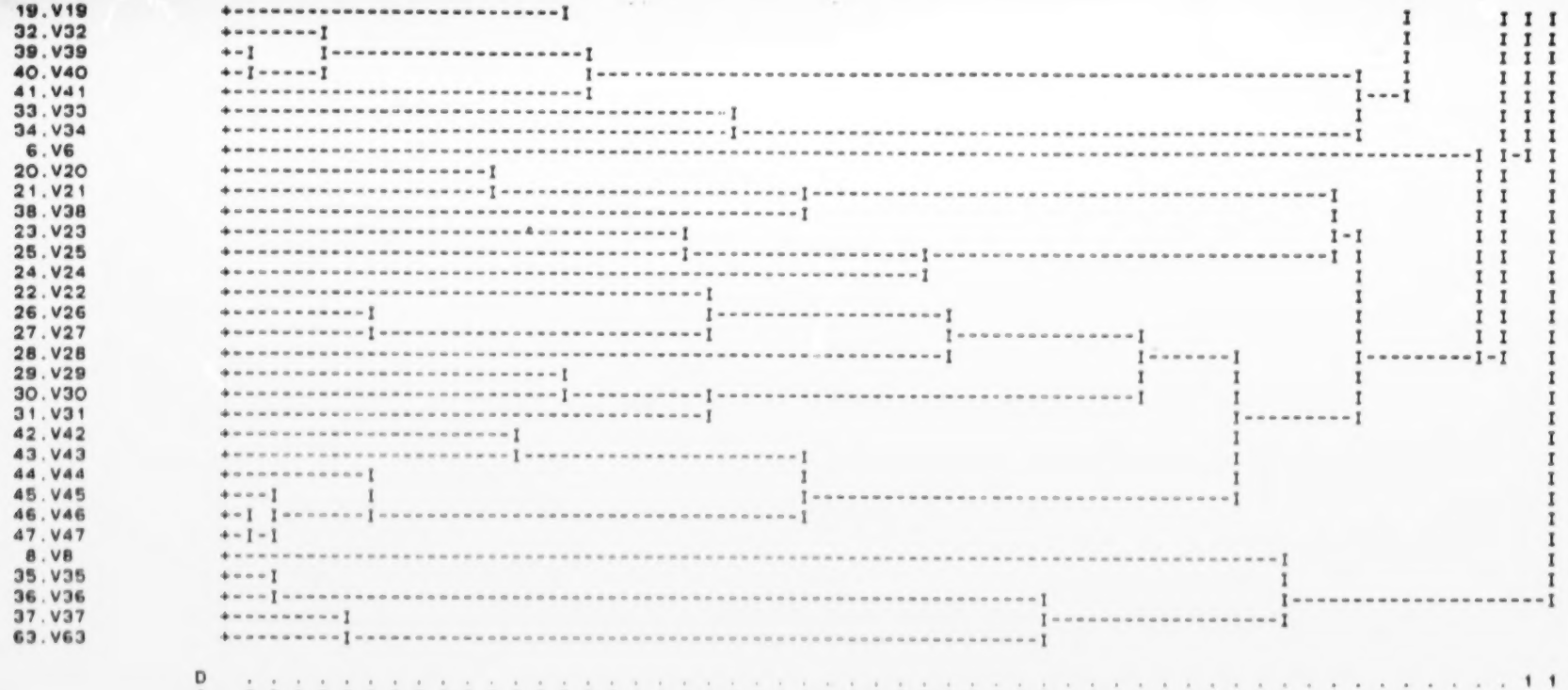
	0%	5%	10%	15%	20%	25%	30%	35%	40%+
OFFICIALS AND ADMINISTRATORS	O	O	O	O	O	O	O	O	O
PROFESSIONALS	O	O	O	O	O	O	O	O	O
TECHNICIANS	O	O	O	O	O	O	O	O	O
OFFICE & CLERICAL WORKERS	O	O	O	O	O	O	O	O	O
SKILLED CRAFT WORKERS	O	O	O	O	O	O	O	O	O
SERVICE/MAINTENANCE	O	O	O	O	O	O	O	O	O
PARAPROFESSIONALS	O	O	O	O	O	O	O	O	O
PROTECTIVE SERVICE WORKERS	O	O	O	O	O	O	O	O	O

As new technology and management processes affect your organization, what do you believe are the most essential skills needed by employees today and in the future?

<CLUSTE VARIABLE OPTIONS=COMPLETE FUNCTION=CORRELATION VAR=ALL IM=19>

Cluster Analysis
BYVARIABLE N=2019 ALGORITHM=COMPLETE DISTANCE=CORRELATION





STEP	LOW	HIGH	VALUE	STEP	LOW	HIGH	VALUE	STEP	LOW	HIGH	VALUE	STEP	LOW	HIGH	VALUE
19	V59	V68	.66902	18	V74	V86	.67932	17	V54	V58	.68132	16	V22	V42	.69276
15	V4	V9	.72238	14	V8	V35	.74002	13	V54	V66	.75269	12	V20	V23	.75751
11	V32	V33	.79266	10	V20	V22	.79406	9	V48	V74	.80413	8	V48	V59	.83818
7	V4	V32	.84037	6	V1	V54	.84594	5	V1	V48	.92525	4	V6	V20	.94845
3	V4	V6	.97572	2	V1	V4	1.0364	1	V1	V8	1.1350				

<STOP>